REMARKS

Applicants respectfully requests entry of the amendments and remarks submitted herein. Claims 2, 17, 33, and 34 have been amended, and claims 13-16, 18, 24-30, and 36-39 have been canceled. Therefore, claims 1-12, 17, 19-23, and 31-35 are currently pending. Attached is a marked-up version of the changes being made by the current amendments. Reconsideration of the pending application is respectfully requested.

The 35 U.S.C. §102 Rejections

Claims 17-19, 24 and 31-35 stand rejected under 35 U.S.C. §102(a) or (e) as being anticipated by Ohlrogge et al. (U.S. Patent No. 5,925,805). This rejection is respectfully traversed.

The Examiner stated that the Ohlrogge et al. reference teaches a method of producing a plant by transforming a plant, including *Brassica napus*, with a construct comprising a nucleic acid encoding a cytosolic ACCase operably linked to a promoter and selecting for plants with a statistically significant increase in oil content (see columns 14-23, especially column 23). The Examiner further stated that the Ohlrogge et al. reference teaches the use of a transit peptide coding sequence in the construct operably linked to the ACCase coding sequence (see column 18, for example).

Applicants have herein amended claims 17, 33, and 34 to recite that the construct "lacks a nucleic acid encoding a transit peptide operably linked to said nucleic said encoding said cytosolic ACCase..." and that the increase in oil content is from about 5% to about 25%. Applicants have canceled claims 18 and 24. The Ohlrogge et al. reference does not teach the use of a construct that lacks a transit peptide. Therefore, the Ohlorogge et al. reference does not anticipate the claims as amended. Accordingly, Applicants respectfully request that the rejection of claims 17-19, 24 and 31-35 under 35 U.S.C §102 be withdrawn.

Claims 36-38 stand rejected under 35 U.S.C. §102(b) as being anticipated by Shorrosh et al. (*PNAS USA*, 1994, 91:4323-4327). The Examiner asserted that the Shorrosh et al. reference

teaches an alfalfa cytosolic (cytoplasmic) ACCase cDNA, wherein cDNAs lack introns, and coding sequence for a transit peptide is not present (citation omitted).

Without acquiescing to the Examiner's rejection, Applicants have herein canceled claims 36-38 without prejudice to continued prosecution. Therefore, the rejection of claims 36-38 under 35 U.S.C §102(b) is moot, and Applicants respectfully request that the rejection be withdrawn.

The 35 U.S.C. §103 Rejections

Claims 1-39 stand rejected under 35 U.S.C. §103(a) as being obvious over Ohlrogge et al. (U.S. Patent No. 5,925,805) taken with Shorrosh et al. (1994, *PNAS USA*, 91:4323-4327) and in view of Gengenbach et al. (U.S. Patent No. 5,498,544). This rejection is respectfully traversed.

The Examiner asserted that the Ohlrogge et al. reference teaches a method of producing a plant by transforming a plant, including *Brassica napus*, with a construct comprising a nucleic acid encoding a cytosolic ACCase operably linked to a promoter and selecting for plants with a statistically significant increase in oil content. The Examiner further asserted that the Ohlrogge et al. reference teaches the use of a transit peptide coding sequence in the construct operably linked to the ACCase coding sequence, and the use of a seed specific promoter, such as a napin promoter. The Examiner goes on to state that the Ohlrogge et al. reference teaches a cytosolic ACCase cDNA, which inherently would not include introns. The Examiner admitted that the Ohlrogge et al. reference does not teach a construct without a transit peptide coding sequence and without introns for plant transformation, and that the Ohlrogge et al. reference does not teach an alfalfa cytosolic ACCase coding sequence.

The Examiner asserted that the Shorrosh et al. reference teaches an alfalfa cytosolic (cytoplasmic) ACCase cDNA, wherein cDNAs lack introns, and coding sequence for a transit peptide is not present.

The Examiner asserted that the Gengenbach et al. reference teaches the desirability of using an ACCase coding sequence with or without a transit peptide and with or without introns for the transformation of a plant with an ACCase coding sequence for the purpose of increasing oil concentration in the plant. The Examiner asserted that the Gengenbach et al. reference also teaches use of a CaMV 35S promoter.

According to the Federal Circuit's opinion in *In re Dow Chemical Co.* (837 F.2d 469, 5 USPQ2d 1529 (Fed. Cir. 1988)), the "consistent criterion for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that this process should be carried out and would have a reasonable likelihood of success, viewed in the light of the prior art.... Both the suggestion and the expectation of success must be founded in the prior art, not in the applicant's disclosure."

Claim 1, and those claims depending therefrom (claims 2-12), are not obvious over the cited references. Claim 1 is directed toward a plant containing an ACCase construct that lacks sequences encoding a transit peptide. Both the Ohlrogge et al. reference and the Gengenbach et al. reference teach that fatty acid synthesis occurs in the plastid (see, for example, column 5, lines 41-47 in the Ohlrogge et al. reference and column 1, lines 51-53 in the Gengenbach et al. reference). The Shorrosh et al. reference discloses several ACCase constructs, but does not use them to transform plants. In view of the cited references, one would not expect that a statistically significant increase in oil content could be achieved in a plant in the absence of a transit peptide directing the ACCase polypeptide into the plastid. Therefore, one of ordinary skill in the art would not have had a reasonable expectation of success, and thus, it would not have been obvious to one of ordinary skill in the art at the time of the invention, that a plant could be produced that contains an ACCase construct lacking a transit peptide and that still produces significantly higher oil content in seeds compared to seeds from a plant lacking the construct. Applicants submit that claims 1-12 are not obvious over the combination of the Ohlrogge et al., Shorrosh et al., and Gengenbach et al. references.

Independent claim 13, and claims 14-16 that depend therefrom, have been canceled without prejudice to continued prosecution. Therefore, the rejection of claims 13-16 is moot.

Independent claims 17, 33, and 34 have been amended to recite that the construct used in the claimed method "lacks a nucleic acid encoding a transit peptide" and to recite that the increase in oil content in seeds relative to seeds produced by a corresponding plant lacking the construct "is from about 5% to about 25% on a dry weight basis." Claims 18 and 24-30 have been canceled.

The methods recited in claims 17, 19-23, and 31-35 as amended herein are not obvious over the cited art. As discussed above, the Ohlrogge et al. reference teaches that fatty acid

synthesis occurs in the plastid. The Ohlrogge et al. reference also discloses only a 5% increase in oil content in seeds from plants transgenic for an ACCase construct containing a transit peptide (see column 6, lines 6-8). Therefore, one of ordinary skill in the art would not have had a reasonable expectation of success, and accordingly, it would not have been obvious to one of ordinary skill in the art, that a significant increase of 5% to 25% in oil content could be reached using an ACCase construct that lacks a transit peptide.

As indicated above, the Shorrosh et al. reference teaches ACCase constructs, but does not use them to transform plants.

The Gengenbach et al. reference also teaches that fatty acid synthesis occurs in the plastid. The Gengenbach et al. reference further discloses that a transit peptide is an optional component of a construct expressing an ACCase sequence (see, for example, column 11, lines 52-56), and predicts a broad range of oil content for plants transformed with such constructs (1.2- to 20-fold increase; see column 5, lines 35-37). The Gengenbach et al. reference, however, does not exemplify a plant, or a method of making a plant, that exhibits high oil content and that contains an ACCase construct lacking a transit peptide. Therefore, based on the Gengenbach et al. reference, it may have been obvious for one of ordinary skill in the art to try to generate a plant that produced seeds having high oil content, thereby practicing the claimed methods. Obvious to try, however, is not the standard. *Ecolochem, Inc. V. Southern California Edison Co.*, 227 F.3d 1361, 56 USPQ2d 1065 (Fed. Cir. 2000).

In combination, the Ohlrogge et al. and the Gengenbach et al. references do not make obvious the claimed invention. Although the Gengenbach et al. reference predicted that a 1.2- to 20-fold increase in oil content could be reached (see column 5, lines 35-37), Gengenbach and colleagues could not have achieved such high levels of oil at the time they filed their application based upon the disclosure in the Olrhogge et al. reference. Several years after the Gengenbach et al. application was filed, Ohlrogge and colleagues only achieved a 5% increase in oil content in seeds from plants transgenic for an ACCase construct (see column 6, lines 6-8). The ACCase construct used by Ohlrogge and colleagues contained a seed-specific promoter and a transit peptide to direct the polypeptide to the plastid, which would be an optimal construct for producing a large amount of oil in the seed. Further, the Ohlrogge et al. reference reports that ACCase activity was 10- to 20-fold higher in these transgenic plants than in control plants (see

column 6, lines 1-4), while on the other hand, the Gengenbach et al. reference predicted a very large increase in oil content accompanied by only a "1.2- to 5-fold increase in ACCase activity" (see column 5, lines 30-34). The predictions contained in the Gengenbach et al. reference are not in agreement with the experimental results disclosed in the Ohlrogge et al. reference.

As discussed herein, the cited art, and specifically the Ohlrogge et al. reference, would not have suggested to one of ordinary skill in the art that they would have a reasonable expectation of successfully generating the claimed plant or of practicing the claimed methods. Therefore, Applicants submit that the cited references, in combination, do not provide a reasonable expectation of success that one of ordinary skill in the art would have been able to produce plants that exhibited a 5% to 25% increase in oil content using an ACCase construct lacking a transit peptide. In view of the amendments and remarks herein, Applicants respectfully request that the rejection of claims 1-39 under 35 U.S.C §103 be withdrawn.

CONCLUSION

Applicants ask that claims 1-12, 17, 19-23, and 31-35 be allowed. Enclosed is a $410 check for a Two-Month Petition for Extension of Time fee. Please apply any charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: February 24, 2003

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

Claims 13-16, 18, 24-30, and 36-39 have been canceled.

Claims 2, 17, 33, and 34 have been amended as follows:

2. (Amended) The plant of claim 1, wherein said increase in oil content is from about 5% to about 25% [greater] on a dry weight basis.

17. (Amended) A method of producing a plant, comprising:

(a) providing a plant comprising a nucleic acid construct comprising a nucleic acid encoding a cytosolic ACCase operably linked to a promoter, wherein said construct lacks a nucleic acid encoding a transit peptide operably linked to said nucleic acid encoding said cytosolic ACCase; and

(b) selecting, for at least one generation, progeny plants that produce seeds exhibiting a statistically significant increase in oil content as compared to seeds produced by a corresponding plant lacking said nucleic acid construct, wherein said increase in oil content is from about 5% to about 25% on a dry weight basis.

33. (Amended) A method of producing a plant, comprising the steps of:

(a) introducing a construct into one or more plants, said construct comprising a nucleic acid encoding a cytosolic acetyl ACCase operably linked to a promoter, wherein said construct lacks a nucleic acid encoding a transit peptide operably linked to said nucleic acid encoding said cytosolic ACCase,

wherein progeny of one or more of said transgenic plants, following at least one generation of selection, produce seeds that exhibit a statistically significant increase in oil content as compared to seeds produced by a corresponding plant lacking said nucleic acid encoding said ACCase, wherein said increase in oil content is from about 5% to about 25% on a dry weight basis.

34. (Amended) A method of increasing the oil content in seeds, comprising the steps of:

(a) creating one or more plants containing a nucleic acid construct, said nucleic acid construct comprising a nucleic acid encoding a cytosolic ACCase operably linked to

a promoter, wherein said construct lacks a nucleic acid encoding a transit peptide operably linked to said nucleic acid encoding said cytosolic ACCase; and

(b) selecting progeny of said one or more plants that exhibit a statistically significant increase in oil content in seeds as compared to seeds produced by a corresponding plant lacking said nucleic acid encoding said ACCase, wherein said increase in oil content is from about 5% to about 25% on a dry weight basis.